CVII. *An Account of the Gardenia: In a Letter to* Philip Carteret Webb, *Eſq*; *F. R. S. from* Daniel C. Solander, *M. D.*

Dear Sir,

Read Dec. 23, 1762. AFTER begging your acceptance of my very ſincere thanks for the many civilities you were pleaſed to honour me with, while I was at your delightful retirement at *Buſbridge*; I ſhall with pleaſure acquit my ſelf of my promiſe to give you the beſt *hiſtorical account* in my power of the GARDENIA Jaſminoides, *together with ſome few obſervations on the ſame plant.*

The *Gardenia* is at preſent well known among the Engliſh gardeners by name of the *Cape Jaſmine*, tho' it has been but a few years in this country. It was firſt brought here 1744 from the *Cape of Good Hope* by Captain *Hutchenſon*, in the Godolphin Indiaman, and by him preſented to *Richard Warner*, Eſq; of *Woodford Row*, *Eſſex*; in whoſe garden it long remained without the leaſt ſign of vegetation; but at laſt, proved to be the moſt beautiful ſhrub that has been introduced among us for a long time. And indeed, the botanic world is as much indebted to the above-named gentleman, for his ſkill and care in the preſervation of the plant, as for his generoſity in communicating it to the public.

When this plant firſt ſhewed itſelf, it was thought a new and unknown one to the European botaniſts; and tho' it came to bloſſom freely, the Flowers unfortunately

fortunately proved double. For notwithſtanding the Fructification is the only material thing in plants, whence they can be ſufficiently known and deſcribed, yet double flowers are really a kind of monſters in the vegetable kingdom, as their principal parts are too much altered and diſtorted, for any thing to be determined from them with certainty. It therefore ſtill remained a difficulty to aſcertain what tribe this ſhrub belonged to; and the only way of forming any judgment, was conſidering all its parts accurately, comparing them with other known plants, and thus by analogy finding out its affinity, and thence its proper place in the vegetable ſyſtem. At firſt, it was thought to be a ſpecies of *Jaſmine*, * as I ſuppoſe from ſome diſtant likeneſs and the fragrancy of its flowers; but as it hardly agreed in any other particular, it was afterwards doubted, if it could properly be referred to that tribe, † and at laſt *John Ellis* Eſq; F. R. S. declared this plant to be a diſtinct genus, and gave it the name of *Gardenia* ‡. This gentleman concluded that the plant then in queſtion, muſt be very different from a Jaſmine, as well from the unlikeneſs in its leaves and ſtipulas, as principally from the Seedveſſel being placed below the receptacle of the flower; but not chooſing to advance this upon his own authority, he ſent an account of it with dryed ſpecimens to Doctor *Linnæus* at *Upſal*, whoſe known extenſive ſkill in every part of natural hiſtory has rendered his opinion among all the profeſſors of that ſcience to be of the beſt authority. The Doctor anſwered, that the ſituation of the Seedveſſel, and the peculi-

* *Miller* Dict. and Fig. † *Ehret* Fig. ‡ Phil. Tranſ. 1760, p. 929.

arity of the Calyx, were ſufficient to perſuade him of its being a new genus; but as the Stamina muſt be uncertain in double flowers, he could not then undertake to determine its characters. However, ſoon afterwards Dr. *Linnæus* wrote word, that he had found a ſingle flower of this ſame plant, among ſome ſpecimens from the *Eaſt Indies*, and no longer ſcrupled to agree to Mr. *Ellis's* determination of the *Gardenia*. There wanted nothing then, but an account of the Fruit; and eſpecially the number of Seeds; and Mr. *Ellis*, who was well acquainted with obſervations on the moſt minute parts of nature ſoon diſcovered, that the Seedveſſel contained rudiments of many Seeds; tho', it ſeems, the veracity of this particular has been much queſtioned; which, no doubt, has aroſe from the imperfect ſtate, that all fruits and ſeeds commonly appear in, after double flowers, as in the preſent caſe. But it was my good fortune, while I was at your moſt agreeable ſeat at *Buſbridge*, and where you indulged me with a ſight of your curious collections of dryed Plants, to diſcover a ſpecimen of this ſhrub in perfect Fruit, gathered by Mr. *Cunningham*, in the *Eaſt Indies*, where that gentleman travelled for diſcovery of natural curioſities. Upon my declaring this, you was ſo obliging, as to permit my diſſecting the fruit, for examination; when you remember, Sir, we had the ſatisfaction to find, that the generical characters of the *Gardenia* given by Mr. *Ellis* in the *Philoſophical Tranſactions*, vol. LI. p. 929. were very compleat. I will only beg leave to add a few particulars, that could not be ſeen in an imperfect or immature fruit.

The *Seed-veſſel*, when ripe, is egg-ſhaped, outwardly ribbed from the deſcending wings of the flower

flower-cup, and within divided into two cells by a thin membranaceous partition. The *Seeds* are many, at leaſt more than fifty in each cell, compreſſed, and ſurrounded with a mucilaginous ſubſtance.

The *mucilage* here mentioned, was ſo little hardned in the fruit I examined, that the ſeeds themſelves were quite ſoft, and inclining to be moiſt.

Recollecting that Dr. *Plukenet* had figured many of Mr. *Cunningham's* plants, I had recourſe to his *Gazaphylacium*, and there found an engraving of this plant, plate 448. *n.* 4, and that it was twice mentioned in his *Amaltheum*, *pages* 29, 212.

From the obſervations, which Dr. *Plukenet* *, Mr. *Petiver* and Mr. *Ray* † have received from Mr. *Cunningham*, I learned that the Chineſe uſe the ſeeds of *Gardenia jaſminoides* as a ſcarlet dye; and as the mucilaginous ſubſtance in which the ſeeds are involved, ſeems to be very copious and rich of colour, I imagine it muſt be worth enquiry, whether this ſhrub may not be found, and tranſported to ſuch of the Britiſh colonies, where it might be propagated; and perhaps become one of the moſt uſeful plants, as it is now one of the moſt beautiful.

I have tryed theſe ſeeds in water, ſpirits and other liquors, and allways found them tinge the menſtruum yellow, notwithſtanding they have been gathered near four ſcore years.

* Semina tinctoribus inſerviunt, iis enim ab indigenis Sinenſibus optime tingitur nobilis ille color, quem Eſcarlatinum noſtrates vocant, ut nos monuit vir multiplicis induſtriæ, atque indefeſſi laboris hac in parte D. Jacobus Cunninghamus. *Plukn. Amalth. p.* 29.

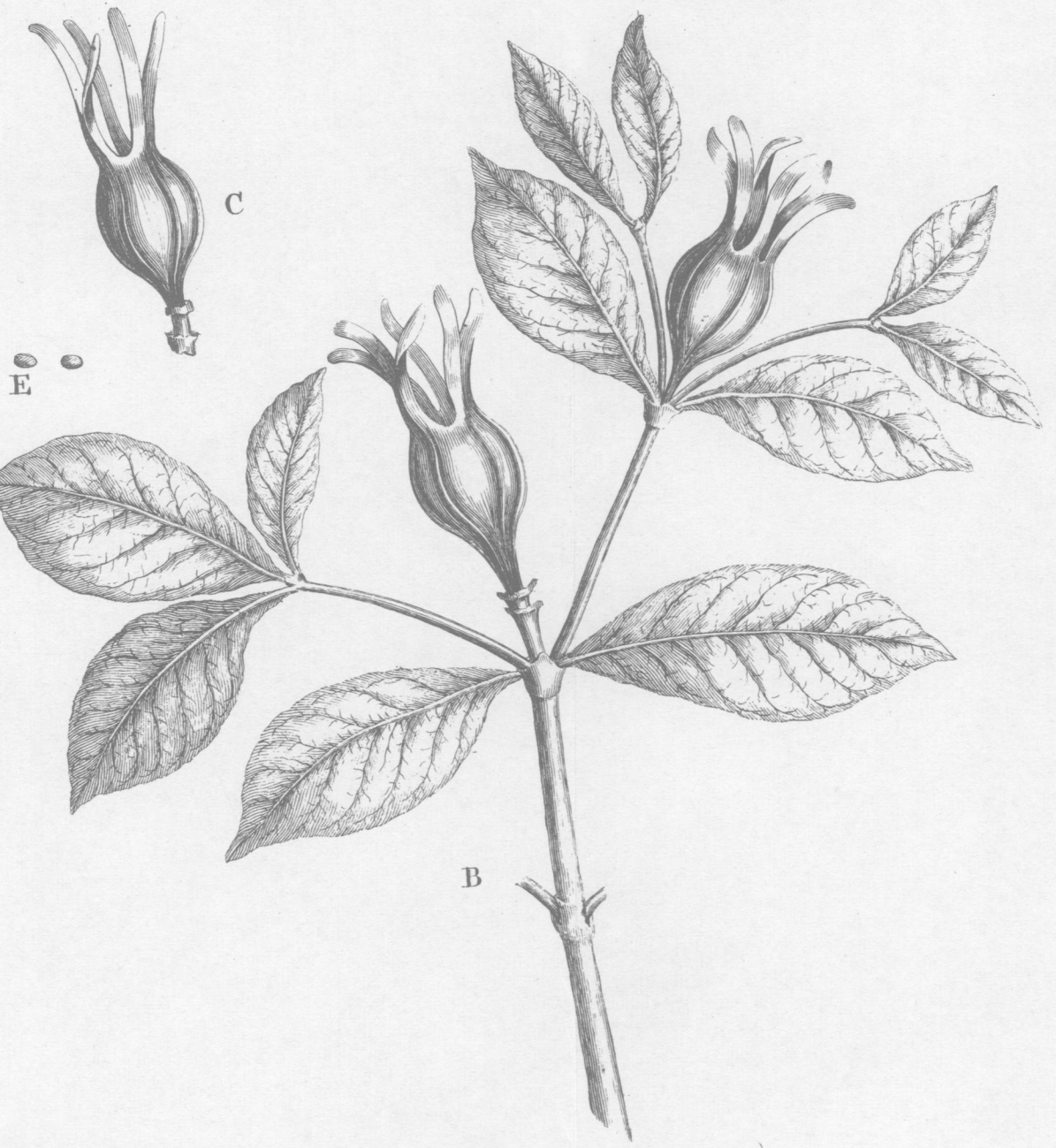
† Hujus fructus celebris eſt et in frequenti uſu apud Chinenſes ad colorem coccineum, ſeu ſcarlatinum tingendum. *Ray*, *Hiſt.* III. *p.* 233.

To confirm myſelf in the diſcovery I had made, I obtained leave to look over the collections of dried plants at the *Britiſh Muſeum*, where many are preſerved, that can be met with no where elſe, and by the aſſiſtance of the aſſiduous Mr. *Empſon*, I found ſeveral good ſpecimens of this valuable ſhrub, viz. in *Hort. Sicc.* XX. p. 25. 86. XCIV. p. 130, CCXLVII. p. 25, CCLXXXIX. p. 33. and CCCXXXI. p. 90, all gathered in the *Eaſt Indies* by Mr. *Cunningham*. The greater part of theſe ſpecimens were in fruit, but one or two with perfect bloſſoms, and they were ſo exactly correſponding with Mr. *Ellis's* account, that I can find nothing to alter or add to it.

There is however one thing I will not omit mentioning, as it may in ſome meaſure account for the unequal number of the diviſions in the double bloſſoms; it is, that ſome of the ſpecimens at the Britiſh Muſeum have their calyx divided into five, and others into ſix ſigments or wings, which ſhew, that the inequality is not altogether peculiar to the double flowers; and I have had *drawings* made from the *beſt ſamples* I could find in the collection, which are here annexed, the better to explain what I have ſaid; where Tab. XX. Fig. A. ſhews a ſpecimen with a *ſingle bloſſom*; Fig. B. another with the *fruit*, both gathered in *China* by Mr. *Cunningham*; Fig. C. a *Capſul* with only *five diviſions* in the *Calyx* (which I ſuppoſe to be the natural number) taken from another dried ſpecimen of the ſame gentleman's; Fig. D. a *tranſverſe ſection* of the ſame *Capſul*, to ſhew the *two cells*, with *many Seeds* in them; and Fig. E. repreſents the *Seeds* of their natural ſize.

If it will not too much treſpaſs upon your patience, I ſhall beg leave to inſert what is ſaid relative to the names

A. GARDENIA *with a Single flower, drawn from a dried Specimen in t*
C. *a Capsula with five divisions in the Calyx.* D *The same cut across to s*



Specimen in the British Museum. B. *The same in Fruit.*
cut across to shew the Seeds lying in the two loculaments. E. *The Seeds.*

J. Mynde fc.

names of this ſhrub, by ſuch Botanical writers as I have had an opportunity to conſult; and, as I have found it ſpoke of but by very few, I hope you will ſo much the readier excuſe me. The firſt author that gives us an account of this plant is Dr. *Plukenet*, after him Mr. *Petiver* and *Ray*, but none of them gave us a true Botanical name or deſcription, much leſs referred it to its proper claſs, order or genus; and notwithſtanding ſo many good ſpecimens were preſerved in the Botanical collections of Sir *Hans Sloane*, now in the *Britiſh Muſeum*, it was taken no farther notice of, before the ingenious Mr. *Miller* of *Chelſea* gave us the deſcription and drawing in his *Gardener's Dictionary* and *Figures of Plants*, from the plant he ſaw at Mr. *Warner's* garden. Mr. *Ehret* ſoon afterwards publiſhed a moſt elegant figure of it, and Mr. *Ellis* at laſt compleated the Botanical deſcription, in the *Philoſophical Tranſactions*.

Thoſe gentlemen have mentioned this ſhrub, under the following names:

Arbuſcula Sinenſis, myrti majoris folio, vaſculo ſeminali hexagono, ad ſingulos angulos alis foliaceis munito, quæ porrectæ vaſculi coronam efformant, Umki Sinenſibus dicta. *Plukn. Amalth. p.* 29.

Umki, alias Umuy; cujus fructum ad colorem eſcarlatinum tingendum inſervit; florem fert roſaceum, album, hexapetalum. *Plukn. Amalth. p.* 212. *tab.* 448. *f.* 4.

Frutex cynoſbati fructu alato, tinctorio, barbulis longioribus coronato. *Petiv. Muſ. p.* 498. *Ray. Hiſt.* III. *p.* 233.

Jaſminum foliis lanceolatis oppoſitis integerrimis, calycibus acutioribus. *Mill. Dict. n.* 7. *Mill. fig.* 180.

Jaſminum,

Jaſminum? ramo uniflore pleno, petalis coriaceis. *Ehret. fig.*

Gardenia jaſminoides. *Ellis, Philoſ. Tranſ.* 1760. *p.* 929. Tab. 23.

One circumſtance ſtill remains to be enquired into, namely, the native place of this ſhrub. That it grows ſpontaneouſly in *China* and the neighbouring countries, I do not in the leaſt doubt, becauſe Dr. *Linnæus* has had his ſpecimen from thence, and Mr. *Cunningham* tells us, in his time, it was found there in ſuch plenty, that they could collect and uſe its ſeeds for dying. Neither do I doubt that Capt. *Hutchenſon* procured the plant he brought over from the *Cape of Good Hope*, eſpecially as there are *ſpecimens* of it with *double bloſſoms* among the curious plants that were brought over from that place to Mr. *Deſmarets*, now in the Britiſh Muſeum, Hort. Sicc. CCLXI. p. 30. But as thoſe have double flowers, and having never heard of any with ſingle bloſſoms being gathered in that country, I can ſcarce believe it is an indigenous plant there, but rather imagine that it muſt have been *brought thither* from the *Eaſt Indies*, either by accident or for their gardens.

I muſt once more take the liberty to repeat, that as this plant may probably be of real benefit by improving the art of dying, I would beg leave therefore to recommend it to you, and all other ſuch public-ſpirited gentlemen, to uſe your beſt endeavours, for diſcovering and bringing over from the Eaſt Indies ſome ſingle bloſſomed plants, or the ſeeds, of the Gardenia; and afterwards to conſider of the propereſt place for planting and cultivating them, for ſo valuable an end. And if it ſucceeds, I ſhall eſteem it a particular

particular honour to have propoſed it to you, as I ſhall be proud of every oportunity to approve myſelf,

Dear Sir,

Your moſt obedient

London, Dec. 14, 1762. humble ſervant

Daniel C. Solander.

CVII. *An Account of the Male and Female Cochineal Inſects, that breed on the* Cactus Opuntia, *or* Indian Fig, *in* South Carolina *and* Georgia: *In a Letter from* John Ellis, *Eſq; to* Peter Wych, *Eſq;*

SIR,

Read Dec. 23, 1762. FINDING the natural hiſtory of Cochineal ſtill defective, (notwithſtanding the diligent inquiries that have been made by many curious perſons into the nature and œconomy of this valuable inſect) for want of a deſcription of the Male, I took the firſt opportunity of endeavouring to illuſtrate it.

Hearing then that this inſect bred in great abundance on the Cactus Opuntia of Linnæus's Species Plantarum, p. 468. in South Carolina and Georgia, where it is a native and grows in great plenty, as well as on the Cactus Coccinellifer of the ſame author, which grows in Mexico, and has been for theſe many years introduced